Zheyuan (Charles) Xu

xuzheyuan961124@gmail.com | (470) 363-0251 | https://charlesxu1124.github.io | https://github.com/CharlesXu1124

Aspiring computer engineer and inventor seeking for summer 2021 software engineering internship.

EXPERIENCES

GTSR (Georgia Tech System Research) Lab **May 2020-Aug 2020**

Research Assistant

- Worked on building GT-MAB (miniature aerial blimp) 2.0, participated in major system and mechatronics. design, as well as production-level firmware development in C++ with well-written documentation.
- Developed an assistive ground station for debugging and testing (both in MATLAB and C#).
- Improved communication link between blimp and ground station, lowered latency by more than **150** times.
- Helped in achieving 6 DOF stabilization on the blimp, co-authored publication in review.

GTSR (Georgia Tech System Research) Lab **Jan 2020-May 2020**

Undergraduate Research Assistant

- Worked on refurbishing and automating the OSV (omni-directional surface vehicle), integrated RTK (real-time kinematic) GPS modules, enabling centimeter-level accuracy in position and heading measurements under complex electromagnetic environments.
- Helped in securing NSF funding for the project.

INVENTION

Ultra-lightweight Low Latency Flight Control System

A low-power, low-latency, lightweight headless flight control system suite for indoor robotics systems

- Co-inventor, participated in system and firmware development, Helped in electronic design and wiring, reducing its weight to within 0.5 grams
- https://licensing.research.gatech.edu/technology/flight-control-system-miniature-aerial-robots

Highly Effective Motion Marker for Small Aerial Robots

A robust, lightweight, low-power marker that eliminates the need for external light sources in indoor motion capture systems.

- Co-inventor, electronic design and verification
- https://licensing.research.gatech.edu/technology/highly-effective-motion-capture-marker-small-aerial-robots

EDUCATION

University of Washington, Tacoma, WA **Sep 2020-Present**

- Master of Science in Computer Science and Systems

Georgia Institute of Technology, Atlanta, GA **Aug 2015-May 2020**

- Bachelor of Science in Computer Science & Electrical Engineering
- Concentration in Theory and Intelligence

SKILLS

Languages: Python, Java, C#, C, C++, JAVASCRIPT, CSS, HTML, SQL, Swift, Objective-C, Dart, MATLAB

System/Frameworks: Android Studio, Visual Studio, Unity, Git, Firebase, Xcode, Matlab, Three.js, RabbitMQ, Solidworks, Eagle CAD, Altium

PROJECTS

AdaEye, -winner for Best Use of Google Cloud, *MakeHarvard 2021* **Feb 2021**

A next-generation navigation and cognitive package for visually impaired

- Integrated the mechanical gimbal with Arduino board and Jetson Nano, implemented the user interface in Swift
- Integrated the voice control feature, allowing users to directly control the gimbal by voice command
- Deployed RabbitMQ in Azure cloud server, which enables real-time delivery of control commands
- Integrated GPT-3 Davinci bot with the voice query, capable of answering complex questions

Neomap, -winner for Best Use of Google Cloud and Radar.io Most Creative Award, *MLH New Year New Hack 2021* **Jan 2021**

An augmented-reality app for share your new year resolution and relive your older memories

- Integrated hand gesture detection with reality kit, allowing real-time keyboard-less reaction to the posts

- Integrated Firebase for storing user information, user posts, and user authentication

Lunar Olympics, -winning entry, *Open Innovation University Hackathan* **Dec 2020**

Future Olympic game hosted on the moon

- Constructed the Olympics scene in Reality Composer, integrated Bluetooth Low Energy (BLE) control for controlling actions of the competing athletes

VCart **Dec 2020**

A mixed-reality, remote shopping experience on your cell phone

- Experimented with Apple's Vision and machine learning framework, optimized the code for better performance with ARKit
- Added action triggers, allowing users to add items to the cart by grabbing
- Integrated with Firebase for storing order history and product recommendation.

GAIA System **Oct 2020**

A system for countering forest fire with space tech and artificial intelligence

- Implemented voice control for minimal user operation
- Integrated Firebase and YOLO network deployed on AWS EC2 instance, enabling real time object detection
- Allows automatic fire region lock by mouse clicks

COMMUNICATION

English (Proficient), Chinese (Native), German (basic)